



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,777	10/29/2001	Siamak Naghian	975.376USW1	9961

32294 7590 08/25/2004

SQUIRE, SANDERS & DEMPSEY L.L.P.
14TH FLOOR
8000 TOWERS CRESCENT
TYSONS CORNER, VA 22182

EXAMINER

FOX, BRYAN J

ART UNIT	PAPER NUMBER
----------	--------------

2686

DATE MAILED: 08/25/2004

10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/014,777

Applicant(s)

NAGHIAN, SIAMAK

Examiner

Bryan J Fox

Art Unit

2686

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/29/2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-22, 25-35 and 38-42 is/are rejected.
- 7) ☒ Claim(s) 23, 24, 36 and 37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because of a number of informalities, including the following:

The word "discloses" appears on line 1. The word "said" appears on lines 8, 10, 12, 13, 15, 17 and 18. The phrase "By the this method" on lines 19-20 is unclear. The phrase "there is no a direct connection" on line 21 is unclear.

Correction is required. See MPEP § 608.01(b).

Claim Objections

Claims 40 and 41 are objected to because of the following informalities: they recite "The radio network according to any one of the claims 33". They should be written "The radio network according to claim 33". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 21-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There are a number of 112, second paragraph issues. The examiner has listed some as an example; it is the responsibility of the applicant to review the application and ensure the claims particularly point out and distinctly claim the subject matter which the applicant regards as his invention.

Claim 21 recites the limitation "said fixed transmitting station" in line 6, however, multiple fixed transmitting stations were introduced on line 3 and it is unclear to which fixed transmitting station the applicant is referring. There is insufficient antecedent basis for this limitation in the claim.

Claim 21 recites the limitation "the relay stations" in line 14. There is insufficient antecedent basis for this limitation in the claim.

Regarding claim 21, both "a mobile station" and "a target mobile station" are introduced and are referred to later in the claim. It is unclear if they both refer to the same mobile station.

Claim 27 recites the limitation "said mobile stations" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 33 recites the limitation "said fixed transmitting station" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 33 recites the limitation "the corresponding fixed transmitting station" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 41 recites the limitation "said mobile location center (GMLC)" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Regarding claim 33, the word "means" is preceded by the word(s) "a" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since no function is specified by the word(s) preceding "means," it is impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 21, 22, 25-35, and 38-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dupray et al (WO9810307) in view of Snyder et al (US006201497B1).

Regarding claim 21, Dupray et al discloses a system for locating mobile stations terminals with a plurality of cell sites in a radio coverage area 120, including base stations 122 and 152 (see page 26, lines 1-11). Each base station radiates referencing signals within their area of coverage (see page 26, lines 24-34) and these signals are received by the target MS, which performs measurements for determining its position (see page 29, lines 7-14), which reads on the claimed "using fixed transmitting stations for positioning a target mobile station by transmitting a location signal from each fixed transmitting station to said mobile station". The target mobile station telemeters back to the location center LC142 the measurements to locate the target mobile station (see page 29, lines 7-14), which reads on the claimed "receiving a response to said location signal from said mobile station by said fixed transmitting station". Dupray et al also discloses the use of mobile base stations sending pilot channels and receiving BS pilot strength measurements from the MS 140 (see page 28, lines 9-20). The mobile base station (MBS) may further contain a global positioning system for locating the position of the MBS (see page 28, lines 17-20), which reads on the claimed "determining the position of said relay station". In one embodiment, a distance computation between the MS and the BS determines a location estimate of the MS by determining distance offset from each of one or more base stations 122, so that an intersection of each area locus defined by the base station offsets may provide an estimate of the location of the target

MS (see page 52, lines 24-31), which reads on the claimed "determining the distance between said target mobile station to the fixed transmitting stations and/or the relay stations on the basis of said location signal, and locating the position of said target mobile station on the basis of the determined distances". Dupray et al fails to disclose that the mobile base station will forward location signals from the base station.

Snyder et al discloses a system where when a line of sight barrier exists, positioning signals are re-radiated within the line of sight barrier so positioning may still occur (see column 7, line 15 – column 8, line 43).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Dupray et al with Snyder et al to include the repeating of positioning signals in order to allow for positioning within a line of sight barrier as suggested by Snyder et al (see column 6, lines 54-58).

Regarding claim 22, the combination of Dupray et al and Snyder et al discloses that the mobile base station is mobile (see Dupray et al page 26, lines 16-17).

Regarding claim 27, the combination of Dupray et al and Snyder et al discloses that it is presumed that each location signature cluster has a single fixed primary base station to which the target MS 140 synchronizes or obtains its timing (see page 47, lines 15-16) and that many commercial wireless telephony technologies require all BS's in a network to be very accurately time synchronized for services such as MS location (see page 103, lines 8-12).

Regarding claim 28, the combination of Dupray et al and Snyder et al discloses that each base station radiates referencing signals within their area of coverage (see

Dupray et al page 26, lines 24-34) and these signals are received by the target MS, which performs measurements for determining its position (see Dupray et al page 29, lines 7-14), which reads on the claimed “the calculation of the location of said target mobile station is performed on the basis of any positioning method based on radio wave propagation data”.

Regarding claim 29, the combination of Dupray et al and Snyder et al discloses that detected target MS signal strength and TOA as well as any recent location center target MS location estimates are used to estimate the target MS location (see Dupray et al page 105, lines 20-35).

Regarding claim 31, the combination of Dupray et al and Snyder et al discloses that upon receipt of the location measurements, a signal classifier examines the messages in the input queue 7 and assesses a relative priority in processing (see Dupray et al page 34, line 31 – page 35, line 9).

Regarding claim 32, the combination of Dupray et al and Snyder et al fails to expressly disclose the use of Opportunity Driven Multiple Access.

The examiner takes official notice that opportunity driven multiple access is known in the art and it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Dupray et al and Snyder et al to use Opportunity Driven Multiple Access in order to enhance coverage.

Regarding claim 33, Dupray et al discloses a system for locating mobile stations terminals with a plurality of cell sites in a radio coverage area 120, including base stations 122 and 152 (see page 26, lines 1-11). Each base station radiates referencing

Art Unit: 2686

signals within their area of coverage (see page 26, lines 24-34) and these signals are received by the target MS, which performs measurements for determining its position (see page 29, lines 7-14), which reads on the claimed "transmitting stations which are adapted for positioning a target mobile station by transmitting a location signal from each fixed transmitting station to said mobile station". The target mobile station telemeters back to the location center LC142 the measurements to locate the target mobile station (see page 29, lines 7-14), which reads on the claimed "receiving a response to said location signal from said mobile station by said fixed transmitting station". Dupray et al also discloses the use of mobile base stations sending pilot channels and receiving BS pilot strength measurements from the MS 140 (see page 28, lines 9-20). The mobile base station (MBS) may further contain a global positioning system for locating the position of the MBS (see page 28, lines 17-20), which reads on the claimed "means which is adapted to determine the position of the relay station". In one embodiment, a distance computation between the MS and the BS determines a location estimate of the MS by determining distance offset from each of one or more base stations 122, so that an intersection of each area locus defined by the base station offsets may provide an estimate of the location of the target MS (see page 52, lines 24-31), which reads on the claimed "determine the distance between said target mobile station to the fixed transmitting stations and/or the relay stations on the basis of said location signal, and which is adapted to locate the position of said target mobile station on the basis of the determined distances". Dupray et al fails to disclose that the mobile base station will forward location signals from the base station.

Snyder et al discloses a system where when a line of sight barrier exists, positioning signals are re-radiated within the line of sight barrier so positioning may still occur (see column 7, line 15 – column 8, line 43).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Dupray et al with Snyder et al to include the repeating of positioning signals in order to allow for positioning within a line of sight barrier as suggested by Snyder et al (see column 6, lines 54-58).

Regarding claim 34, the combination of Dupray et al and Snyder et al discloses a location center 142 which is required for determining a location of a target MS 140 using signal characteristic values for this target MS (see Dupray et al page 26, lines 16-17), which reads on the claimed “said determination and location means is a mobile location center”.

Regarding claim 35, the combination of Dupray et al and Snyder et al discloses that the mobile base station is mobile (see Dupray et al page 26, lines 16-17).

Regarding claim 41, the combination of Dupray et al and Snyder et al discloses that upon receipt of the location measurements, a signal classifier examines the messages in the input queue 7 and assesses a relative priority in processing (see Dupray et al page 34, line 31 – page 35, line 9).

Regarding claim 42, the combination of Dupray et al and Snyder et al fails to expressly disclose the use of Opportunity Driven Multiple Access.

The examiner takes official notice that opportunity driven multiple access is known in the art and it would have been obvious to a person of ordinary skill in the art at

the time of the invention to modify the combination of Dupray et al and Snyder et al to use Opportunity Driven Multiple Access in order to enhance coverage.

Claims 23 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dupray et al in view of Snyder et al as applied to claims 22 and 35 above, and further in view of Vazvan (WO9601531).

Claims 25, 26, 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dupray et al in view of Snyder et al as applied to claim 21 and 34 above, and further in view of Havinis et al (US006167266A).

Regarding claims 25 and 38, the combination of Dupray et al and Snyder et al fails to expressly disclose the authorization of location requests.

Havinis et al discloses a system for locating mobile phones where a positioning request is performed upon authorization (see column 4, lines 41-56) and a location service profile including authority to initiate a positioning request is stored in the GMLC (see column 4, lines 19-40).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Dupray et al and Snyder et al to include the above authorization in order to improve methods of processing the positioning triggers and greatly improve the quality of the location services as suggested by Havinis et al (see column 3, lines 7-17).

Regarding claims 26 and 39, the combination of Dupray et al, Snyder et al and Havinis et al discloses that authority to initiate a positioning request in a database 398 within the GMLC 390 (see column 4, lines 19-40).

Claims 30 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dupray et al in view of Snyder et al as applied to claims 21 and 33 above, and further in view of Kangas et al (US006356763B1).

Regarding claims 30 and 40, the combination of Dupray et al and Snyder et al discloses that the invention is especially suitable for CDMA, however other wireless infrastructures such as TDMA and GSM are contemplated (see Dupray et al page 15, lines 22-31). The combination of Dupray et al and Snyder et al fails to expressly disclose the use of WCDMA.

Kangas et al discloses a similar system for locating wireless devices that may be implemented in WCDMA (see column 11, lines 57-63).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Dupray et al and Snyder et al with Kangas et al to include the use of WCDMA in order to take advantage of the benefits wideband, such as higher data transfer rates.

Allowable Subject Matter

Claims 23, 24, 36 and 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 23 and 36, the prior art applied fails to teach, suggest or render obvious a method for locating a mobile station using fixed transmitting stations

Art Unit: 2686

transmitting a location signal from each station to the mobile station and receiving a response to the location signal from the mobile station at the fixed transmitting station with a relay station retransmitting the location signal from the fixed transmitting station to the mobile station and retransmitting the response from the mobile station to the fixed transmitting station when direct signals are not available from the fixed transmitting station, determining the position of the relay station, determining the distance between the mobile station and the fixed transmitting station and/or relay station and locating the mobile station on the basis of the distances; where the relay station is movable and the distance between the relay station and the mobile station is calculated by $D=c(\Delta t) + \beta \cdot d_{\max}$.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sanderford, Jr et al (US4799062) discloses a radio position determination method and apparatus.

Honda et al (US006477353B1) discloses a mobile wireless transceiver method and apparatus.

Sood (US005293645A) discloses an apparatus and method for locating mobile and portable radio terminals in a radio network.

Gladwin et al (US006339709B1) discloses a personnel locating system.

Hyziak et al (US006125279A) discloses a method and apparatus for extending coverage in a cellular communication system.

Schoen et al (US006028551A) discloses a micro-miniature beacon transmitting only geo-location emergency system for personal security.

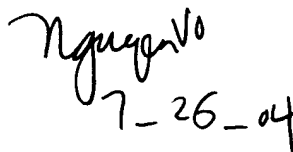
Hornfeldt et al (US006006097A) discloses a method for determining position of mobile communication terminals.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryan J Fox whose telephone number is (703) 305-8994. The examiner can normally be reached on Monday through Friday 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on (703) 305-4379. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BJF

Handwritten signature of Nguyen T. Vo, dated 7-26-04.

NGUYENT.VO
PRIMARY EXAMINER